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EXAMINER	
GAGLIARDI, ALBERT J	

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 05/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/869,407	THOMS, MICHAEL	
	Examiner	Art Unit	
	Albert J. Gagliardi	2878	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Comment on Submissions

1. The response filed 21 April 2003 has been entered as Amendment B.

Claim Objections

2. The examiner reiterates that claim 10 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Claim 10 is dependent on both claims 9 and claim 7.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. The examiner reiterates that claims 9 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd.

App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949).

Regarding claim 9, the claim recites the broad recitation "protective layer", and the claim also recites "in particular a metal layer . . ." which is the narrower statement of the range/limitation.

Regarding claim 10, the claim recites the broad recitation "connected to the storage layer" and the claim also recites "e.g. with the use of an adhesive . . ." which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-5, 11, and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sieber *et al.* (US 5,693,254) in view of Sieber *et al.* (US 5,391,884) and DeBoer *et al.* (4,733,090).

Regarding claim 1, *Sieber* discloses a phosphor for use in a flat storage element for an x-ray image (col. 3, lines 35-48) comprising a large number of storage particles (col. 3, lines 52-57) which may be placed by means of x-ray light in metastable excitation states that are convertible by irradiation with activating light into an unstable excitation state which is in turn decomposed with the radiation of fluorescent light (col. 3, lines 58-63), and with a binder agent by means of which the storage particles are held together to form a storage layer (col. 3, lines 53-

57), wherein the binding agent and the storage particles have substantially the same refractive index (col. 4, lines 6-11), characterized in that the storage particles consist of a salt material which comprises two salts, chemically different, but crystallizing in the same crystal structure wherein the salts for a mixed crystal (see, for example, col. 4, lines 17-34; and col. 6, lines 8-24).

Regarding the binding agent and the phosphor particles being transparent, although not specifically disclosed by *Sieber*, it is well known in the art to utilize a variety of functionally equivalent binders and phosphors including crystal clear transparent binders such as PMMA (see, for example, *Sieber 884* at col. 5, line 59 to col. 6, line 14, especially col. 6, line 2) and transparent phosphors (see, for example, *DeBoer* at col. 3, line 57 to col. 6, line 19). Therefore, absent some degree of criticality, the use of crystal clear transparent binders and phosphors is viewed as an obvious, if not inherent, design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application in view of the known use of such functionally equivalent transparent binders and phosphors for x-ray imaging application.

Regarding claim 2, *Sieber* discloses that the salts differ in their cations and/or anions (see, for example, col. 4, lines 18-19).

Regarding claim 3, *Sieber* discloses that the cations are halides (see, for example, col. 4, lines 18-19).

Regarding claim 4, *Sieber* discloses that the refractive index of the binder may be a material with a refractive index of between 1.4 and 1.6 (see generally col. 52, line 22 to col. 53, line 56). *Sieber 884* further suggests that the binder may be a plastic material (col. 5, line 59 to col. 6, line 14).

Regarding claim 5, *DeBoer* further suggests that the binder and/or phosphor may be isotropic (col. 3, line 57 to col. 6, line 19).

Regarding claim 11, *Sieber* discloses that the storage element includes a storage layer that forms a bendable structure (col. 1, lines 32-36).

Regarding claim 14, *Sieber '884* suggests that the binder may be PMMA (col. 6, line2).

Regarding claim 15, the apparatus as suggested by *Sieber*, *Sieber '884*, and *DeBoer* as applied above (see explanation regarding claim 1 above), suggests a method for producing a storage element for an x-ray image (col. 3, lines 35-48) comprising a large number of storage particles (col. 3, lines 52-57) which may be placed by means of x-ray light in metastable excitation states that are convertible by irradiation with activating light into an unstable excitation state which is in turn decomposed with the radiation of fluorescent light (col. 3, lines 58-63), and with a transparent binding agent by means of which the storage particles are held together to form a storage layer (col. 3, lines 53-57), wherein the binding agent and the storage particles have substantially the same refractive index (col. 4, lines 6-11), characterized in that the refractive index of the binding agent is measured (inherent and/or obvious step in view of the recognition of equalizing the indexes of refraction) and in that two salts, one having an refractive index lower than the refractive index of the binding agent and the other having a refractive index above the refractive index of the binding agent (inherent mathematical property of an average refractive index at col. 4, line 10, as well as an inherent property of salts of differing elements (i.e., Cl and Br at col. 4 line 55) the two salt are mixed in proportion such that the refractive index of the mixed crystals obtained from the two matches the refractive index of the binding agent (col. col. 4, lines 6-11).

Regarding claims 16-17, *Sieber '884* suggests that the binding agent may be crystal clear PMMA (col. 6, line 2).

Regarding claims 18-20, *Sieber* discloses that the salts may differ in their cations and/or anions (see, for example, col. 4, lines 18-19 and col. 14-16).

7. Claims 6-8 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Sieber*, *Sieber 884*, and *DeBoer* as applied to claim 1 above, and further in view of Arakawa (US 4,944,026).

Regarding claim 6, *Sieber* does not disclose the specific details of the storage element including the specific use of an anti-reflection coating on the front surface of the storage layer.

Regarding the use of an anti-reflection coating, the use of such coatings on storage elements is well known (see for example *Arakawa* at col. 2, lines 34-45) and would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

Regarding claim 7, *Sieber* does not disclose the specific details of the storage element including the specific use of an absorbing layer on the rear side of the storage layer.

Regarding the use of an absorbing layer, the use of such layers on storage elements is well known (see for example *Arakawa* at col. 7, lines 42-53) and would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

Regarding claim 8, *Sieber* does not disclose the specific details of the storage element including the specific use of a reflecting layer on the rear side of the storage layer.

Regarding the use of a reflection layer, the use of such layer on storage elements is well known (see for example *Arakawa* at col. 3, lines 54-56) and would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

Regarding claim 12, *Sieber* discloses that the storage elements may be made according to conventional techniques (col. 11, lines 34-40). Such conventional techniques are known to include methods wherein a binding agent in a liquid state and the storage particles are dispersed to form a thin film-type layer and the binding agent is then cured (see for example *Arakawa* at col. 12, lines 14-23).

Regarding claim 13, *Arakawa* further discloses that the binding agent is prepared in the highly liquid state to which end it is heated (col. 13, lines 16-18).

8. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Sieber*, *Sieber 884*, and *DeBoer*, as applied above, and further in view of *Arakawa* and Kitada *et al.* (US 4,835,396).

Regarding claim 9, *Sieber* does not disclose the specific details of the storage element including the specific use of a protective layer on the rear side of the storage layer.

Regarding the use of a protective layer on the rear side of a storage layer, the use of an additional protective layer on storage elements is well known (see for example *Arakawa* at col. 7, lines 42-49) and would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application. *Kitada* further discloses that such additional protective layer may be a metal layer such as a lead foil so as to protect from the effects of scattered radiation (col. 8, lines 17-21).

Regarding claim 10, as best understood, *Arakawa* further discloses the use of an adhesive layer in conjunction with additional protective layer so as to enhance adhesion of the layers (col. 7, lines 42 49).

Response to Arguments

9. Applicant's arguments with respect to claims 1-20 have been considered but they are either not persuasive because the limitations recited in the amended claims (1-14) are disclosed or suggested by the original references as discussed in the above or are moot (claims 15-20) in view of the new grounds of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

11. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert J. Gagliardi whose telephone number is (703) 305-0417. The examiner can normally be reached on Monday thru Friday from 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (703) 308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Albert J. Gagliardi
Examiner
Art Unit 2878

AJG
May 19, 2003